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# ROYAL ONTARIO MUSEUM OF ZOOLOGY TORONTO

LEAFLET NO. 9

## ABOUT BIRDS IN WINTER\*



ROCK PTARMIGAN

There was a time, long ago, when men were perplexed at the disappearance of birds in the fall and their reappearance in the spring. More particularly there was mystery in the vanishing of the host of small birds which fly by night. Where did they go? Were they transmuted into some other form, or did they bury themselves in the earth to remain in a state of torpor until spring?

It is now common knowledge that the majority of birds which live with us in summer will be far away in some more temperate region when winter comes—not all, but most of them. We are now more inclined to wonder why some birds do not migrate.

The birds which occur in a particular region (over a long period of years and at all seasons) may be divided into the following five categories: Accidentals or stragglers, migrants or transients, summer residents, winter visitants and permanent residents.

A complete catalogue of bird occurrences in a particular area in Ontario, especially in southerly sections, may total three hundred or more kinds. Little more than one-third of these will be summer residents. The number to be found in winter will be very much smaller.

It is essential that most species of birds migrate in the fall. Let us suppose that all the birds found in some area of our province in summer, say the Lake Simcoe region, suddenly lost the age-old urge to migrate. How many kinds could survive the winter? We cannot be exact in our answer, but it seems probable that three-quarters of them would die. The birds to be found near the close of winter would consist largely of our regular winter birds—the permanent residents and the winter visitants which come down from the north. The flycatchers, the swallows, most of the thrushes, the vireos, the warblers, and many of the sparrows would probably have perished because of the scarcity of insect food even if they were capable of withstanding low temperatures.

Winter with us is a season of snow and ice and of suspended growth. The summer's insect crop is hidden away in niches and crannies, largely in the form of eggs or pupae. Much of the previous fall's store of seeds

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and fruits is blanketed with snow. Birds which remain in northern climates for this season must be capable of uncovering this food supply. The scarcity of food is, therefore, a real reason for the scarcity of birds in northern situations in winter. And the farther north we go, the scarcer the food and the fewer the birds.

To obtain an idea of the kinds of birds found in the north in winter, and to appreciate their distribution, let us undertake an imaginary bird census, say at the Christmas season. Although one or more surprise or exceptional records are commonly made in taking a bird census, we shall look only for the more likely winter birds. First, let us travel to the bleak and frozen barren grounds on Baffin Island. We must be prepared for a temperature of forty degrees below zero, and because of the very short winter day in this region, our observations will be limited to two or three hours at mid-day. After a long tramp over snow and ice, where occasional dwarfed willows poke through their frigid bed, we shall probably have noted the following birds:

Rock ptarmigan

Raven

Now let us return southward to the spruce forest, say south of James Bay. We must still be prepared for extreme cold, but the duration of the daylight period will be lengthened. Here, if we travel through the forest, over frozen muskeg and along meandering creek-beds, we shall probably have seen the following birds:

Spruce grouse

American three-toed woodpecker

Ruffed grouse

Canada jay

Sharp-tailed grouse

Black-capped chickadee

Willow ptarmigan

Hudsonian chickadee

Hawk owl

Redpoll

Next we shall journey south to the rocky country covered by a coniferous forest, where pines, spruce, fir, cedar, poplar, and birch grow in pure stands or mixtures. This may be in the Lake Nipissing or the Algonquin Park area. After a long tramp in the woods, over frozen lakes, through cedar swamps and clearings, we may have seen the following birds:

Spruce grouse

Blue jay

Ruffed grouse

Black-capped chickadee

Horned owl

Hudsonian chickadee

Pileated woodpecker

Pine grosbeak

Hairy woodpecker

Redpoll

Downy woodpecker

Red crossbill

Arctic three-toed woodpecker

White-winged crossbill

Canada jay

Snow bunting

Our last census should be made in the hardwood forests of extreme southern Ontario. Let us walk through some fine old woods that have been preserved and still harbour characteristic winter birds. At the edge we shall inspect the thickets and discover the birds which may be seen on open fields. Here is our Christmas census list for extreme southern Ontario:



Red-tailed hawk  
Red-shouldered hawk  
Ruffed grouse  
Bob-white  
Mourning dove  
Screech owl  
Horned owl  
Hairy woodpecker  
Downy woodpecker  
Blue jay  
Crow  
Black-capped chickadee  
White-breasted nuthatch

Brown creeper  
Robin  
Golden-crowned kinglet  
Cedar waxwing  
Meadowlark  
Cardinal  
Purple finch  
Pine siskin  
Goldfinch  
Slate-colored junco  
Tree sparrow  
Song sparrow  
Snow bunting

Having completed our imaginary Christmas census, let us examine the lists. On none of them is there a name which would seem exceptional or out of place to a bird student. Each list represents the likely occurrences for each particular region. The birds are those adapted for life in the north in winter, although some are better adapted for extreme boreal conditions than others.

The rock ptarmigan is an example of extraordinary fitness. It lives the year round "at the top" of our world. Let us note its general appearance. Its plumage is largely white; the tail-feathers, the wing-feather shafts and a line through the eye are black, but the extent of these markings is relatively small. One might readily fail to see a ptarmigan, if it remained motionless, as it commonly does. Undoubtedly its general whiteness affords protection in a land of snow and ice, foxes and wolves. Other characteristics also serve this bird well in the Arctic. Its plumage is especially well suited to shield it from the weather and to retain body heat, serving as a raincoat and overcoat with equal efficiency. Then, too, the ptarmigan is equipped with "leggings" and "snowshoes" in the form of densely feathered "legs" and toes. The feathered feet hold warmth and provide broad surfaces to prevent sinking in the snow. But how do these birds find suitable food? They are capable of living in winter on the buds, twigs, and seeds which are found exposed here and there above the snow. Ptarmigan walk mile after mile in search of food as a regular habit. All of these characteristics are adaptations for living in a frigid zone. But do these features constitute the only equipment for a bird in the Arctic winter? Not at all—let us examine next a species which in many respects offers a striking contrast to the ptarmigan.

The raven, although not limited in range to the Arctic, is fully capable of existing there in winter. Unlike the ptarmigan, it is black, not white. Nor has it "leggings" or "snowshoes"—its "legs" and toes are bare. The raven in the far north in winter does not depend on foot travel and concealment. It depends on its wits and a keen eye, as it surveys the landscape from some prominence, or flies here and there on survey. Moreover, the raven does not insist on a vegetable diet. A taste for many sorts of edible substances, vegetable or flesh, carrion or fresh, is



a notable convenience to this bird in a land where food is scarce. Its very existence there demonstrates that the raven's equipment, though very different from that of the ptarmigan, is suitable for life in the far north.

All birds which regularly winter in the north are equipped in some way to withstand successfully the severe conditions found there. Whether it be the snow bunting, the Canada jay, the chickadee or the nuthatch, each has its own particular means of securing a livelihood and the necessary physical stamina to withstand our winter climate. The snow bunting or the tree sparrow can search out and subsist on the seeds still held by skeleton plant-stalks above the snow and at night they roost in comfort in hollows beneath the snow itself.

A few species of birds included in our list for southern Ontario require further comment. While most mourning doves, robins, meadow-larks and song sparrows leave us in the fall for their southern winter home, a few hardy individuals of these and some other kinds remain in southern Ontario throughout most winters. Such individuals may be regarded as pioneers; they are not conforming exactly to the usual customs of their race. They are sufficiently hardy to live through our winters, if they can find enough to eat. It is probable that there is now more of certain kinds of food for birds than before the white man came. Grain fields, orchards, and refuse heaps are a source of food not formerly available.

We see then that birds found in any particular locality in our region may be grouped into several categories. Most of them conform to a migration custom whereby they escape the severe conditions of a northern winter and it is well for most birds that they do so. We have further noted that the farther north we go, the fewer are the birds which can remain there. Birds which remain in the north instead of migrating to milder climates must be especially equipped by nature to do so. It has been shown also that nature provides more than one group or set of features which satisfactorily meet the rigorous conditions of winter.

Experiments have been made which show that many of our birds are capable of withstanding continuous cold temperatures if sufficient food is available. Sleet storms and freezing winter rains present the most severe conditions for bird life. Ice seals up the food supply even to our regular winter birds which are best equipped to secure it. In addition, moisture freezing on the feathers of birds destroys the insulating effect of their body covering. This often proves fatal to birds in winter.

For the most part our regular winter birds find the northern climate congenial. That lively band of sparkling-eyed, black-capped chickadees which visits your food shelf for suet or seeds, is not suffering with the cold. They command our admiration rather than our pity. They typify the excellence with which nature has brought about adjustments of form and behaviour, so that life can flourish even under the most extreme conditions.

L. L. S.











